STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0124575
Owner:	Northeast MO Grain Processors, LLC
Address:	30211 Major Avenue, Macon, MO 63552
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Northeast MO Grain Processors Ethanol Plant
Address:	30211 Major Avenue, Macon, MO 63552
Legal Description:	NW ¼, NW ¼, Sec. 17, T57N, R13W, Macon County
Receiving Stream:	Unnamed Tributary to Middle Fork Salt River (U)
First Classified Stream and ID:	Middle Fork Salt River (C)(00123)
USGS Basin & Sub-watershed No.:	(07110006-010002)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

See page 2

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

May 19, 2000
Effective Date

April 4, 2003
Revision Date

Stephen M. Mahfood, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

May 18, 2005
Expiration Date

G. Irene Crawford, Director, Northeast Regional Office

FACILITY DESCRIPTION (continued)

Outfall #001 – Storm Water Runoff - SIC #2869
Storm water collection basins/sludge retained in lagoon/stormwater runoff.
Design flow is 0.376 MGD.

Outfall #002 - Reverse Osmosis Reject Water and Cooling Tower Blowdown - SIC #2869
Design flow is 0.11 MGD.

Outfall #003 – Process Wastewater - SIC #2869, SIC #2813
Methonator/Five aerated lagoons/polishing lagoon/compressed CO_2 for pH adjustments/sludge retained in lagoons
Design population equivalent is 1,600.
Design flow is 0.16 MGD.

Outfall #004 - Domestic wastewater and sludge - SIC #4952
Septic tank/single cell lagoon/sludge retained in lagoon/spray irrigation/storm water runoff.
Design population equivalent is 8.
Design flow is 0.00075 MGD, including 1-in-10 year rainfall (273,750 gal/year).
Design sludge production is 0.18 dry tons/year.

Outfall #005 - Combined flow from outfalls #002 and #003-SIC - #2869
Design flow is 0.27 MGD.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001 - Storm Water Runoff, Sampling port between primary and secondary basins						
Flow	MGD	*		*	once/year	24 hr. estimate
Biochemical Oxygen Demand$_5$	mg/L	*		*	once/year	grab
Total Suspended Solids	mg/L	*		*	once/year	grab
pH – Units	SU	***		***	once/year	grab
Oil and Grease	mg/L	*		*	once/year	grab
Outfall #001 - Storm Water Runoff (Note 1)						
Flow	MGD	*		*	once/quarter	24 hr. estimate
Biochemical Oxygen Demand$_5$	mg/L	80		30	once/quarter	grab
Total Suspended Solids	mg/L	50		50	once/quarter	grab
pH – Units	SU	***		***	once/quarter	grab
Oil and Grease	mg/l	15		10	once/quarter	grab
Outfall #002 - Reverse Osmosis Reject Water and Cooling Tower Blowdown						
Flow	MGD	*		*	once/month	24 hr. total
Temperature	°C	90°			once/month	grab
pH	SU	***		***	once/month	grab
Oil and Grease	mg/L	15		10	once/month	grab
Sulfates plus Chlorides	mg/L	1000		1000	once/month	grab
Total Residual Chlorine	mg/L	1.0		1.0	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE May 28, 2003. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

PERMIT NUMBER MO-0124575

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #003 - Process Wastewater – SIC 2869 and SIC 2813						
Flow	MGD	*		*	once/week	24 hr. total
Biochemical Oxygen Demand$_5$**	mg/L	*		*	once/week	grab
	lb/day	107		40	once/week	grab
Total Suspended Solids(NFR)**	mg/L	*		*	once/week	grab
	lb/day	198		61	once/week	grab
Ammonia-N	mg/L	5.0		5.0	once/week	grab
pH – Units	SU	***		***	once/week	grab
Oil and Grease	mg/L	15		10	once/week	grab
Outfall #004 - Emergency discharge (Notes 2, 3 & 4) - Domestic wastewater and sludge						
Flow	MGD	*		*	once/week	24 hr. estimate
Biochemical Oxygen Demand$_5$	mg/L	65		45	once/week	grab
Total Suspended Solids	mg/L	110		70	once/week	grab
pH – Units	SU	***		***	once/week	grab

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		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #005 - Combined flow from outfalls #002 - #003						
Whole Effluent Toxicity (WET) Test	% Survival	See Special Condition #4			once/year	24 hr. composite
pH – Units	SU	***		***	once/year	grab

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE October 28, 2003. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.
** This facility is required to meet a removal efficiency of 65% or more.
*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.

Note 1 –Permittee shall collect and analyze four samples per year during the quarters beginning with the months of January, April, July, and October. Report as a no discharge when a discharge does not occurring during the quarter.

Note 2 - Monitor only when discharge occurs. Report as a no discharge when a discharge does not occur during the reporting period.

Note 3 - No-discharge facility requirements. Wastewater shall be stored and land applied during suitable conditions so that there is no-discharge from the lagoon or irrigation site. An emergency discharge may occur when excess wastewater has accumulated above feasible irrigation rates due to precipitation exceeding 1-in-10 year 365 day rainfall or the 25-year 24-hour storm event.

Note 4 - Records shall be maintained and summarized into an annual operating report, which shall be submitted by January 28th of each year for the previous calendar year period. The report shall include the following:

a. Record of maintenance and repairs performed during the year, average number of times per month the facility is checked to see if it is operating properly, and description of any unusual operating conditions encountered during the year;
b. The number of days the lagoon has discharged during the year, the discharge flow, the reasons discharge occurred and effluent analysis performed; and
c. A summary of the irrigation operations including freeboard at the start and end of the irrigation season, the number of days for irrigation each month, the total gallons irrigated, the total acres used, crops grown, crop yields per acre, the application rate in inches/acre per day and for the year, the monthly and annual precipitation received at the facility and a summary of testing results.

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

3. Permittee will cease discharge by connection to areawide wastewater treatment system within 90 days of notice of its availability.

4. Whole Effluent Toxicity (WET) tests will be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
#005	100%	ANNUALLY	24 hr. composite*	July*

*Sample must be taken while biocides are being used. Report results in October.

a. Test Schedule and Follow-up Requirements

(1) Perform a single-dilution test in the months and at the frequency specified above.

If the test passes the effluent limit do not repeat test until the next test period. Submit results with the annual report.
If the test fails the effluent limit a multiple dilution test shall be performed within 30 days, and biweekly thereafter until one of the following conditions are met:

(a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
(b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

(2) The permittee shall submit a summary of all test results for the test series to the Planning Section of the WPCP, DNR, Box 176, Jefferson City, MO within 14 days of the third failed test. DNR will contact the permittee with initial guidance on conducting a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE). The permittee shall submit a plan for conducting a TIE or TRE to the Planning Section of the WPCP within 60 days of the date of DNR's letter. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

C. SPECIAL CONDITIONS (continued)

4. Whole Effluent Toxicity (WET)(continued)

a. Test Schedule and Follow-up Requirements (continued)

(3) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(4) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in part b.(1) will be required during this period.

(5) In addition to the WET test summary report required in part (2), all failing test results shall be reported to DNR within 14 days of the availability of results.

(6) All WET test results for the reporting period shall be summarized and submitted to DNR by the end of the following October. When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.

b. PASS/FAIL procedure and effluent limitations

(1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.

(2) To pass a multiple-dilution test:

(a) the computed percent effluent at the edge of the zone of initial dilution (AEC) must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms, or,
(b) all dilutions equal to or greater than the AEC must be nontoxic. Failure of one multiple-dilution test is considered an effluent limit violation.

c. Test Conditions

(1) Test species: Ceriodaphnia dubia and fathead minnows, Pimephales promelas. Organisms used in WET testing should come from cultures reared for the purpose of conducting toxicity tests and should be cultured in a manner consistent with the most current USEPA guidelines. All test animals should be cultured as described in EPA-600/4-90/027.

(2) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.

(3) When dilutions are required, upstream receiving stream water will be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used. Procedures for generating reconstituted water will be supplied by the Department of Natural Resources (DNR).

C. SPECIAL CONDITIONS (continued)

4. Whole Effluent Toxicity (WET) (continued)

c. Test Conditions (continued)

(4) Tests should be initiated immediately after the sample is collected, but tests must be initiated no later than 36 hours after collection.

(5) Single-dilution tests will be run with:
(a) Effluent at the AEC concentration;
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(6) Multiple-dilution tests will be run with:
(a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC.
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

d. The sample collected for the analysis of Whole Effluent Toxicity shall be collected at a point in the southwest corner of the industrial site, after the effluents from Outfalls 001, 002 and 003 have become mixed.

5. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:
(a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
(1) One hundred micrograms per liter (100 ug/L);
(2) Two hundred micrograms per liter (200 ug/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
(3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
(4) The level established in Part A of the permit by the Director.
(b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

6. Report as no-discharge when a discharge does not occur during the report period.

7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
(a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
(b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

C. SPECIAL CONDITIONS (continued)

8. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:

(a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
(b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
(c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
(d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
(e) There shall be no significant human health hazard from incidental contact with the water;
(f) There shall be no acute toxicity to livestock or wildlife watering;
(g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
(h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

9. Special Conditions for Domestic Wastewater Irrigation (outfall #004 only)

A. Wastewater Irrigation System.
(1) System Design and Application Rates.
(a) There shall be design capacity for at least 120 days storage for wastewater flows, plus the one in ten year rainfall minus evaporation and the 25 year 24-hour rainfall.
(b) Irrigation rates per acre shall not exceed 0.2 inch/hour, 0.5 inch/day, 1.5 inch/week and 12 inches/year on the irrigation sites.
(c) The wastewater irrigation site(s) shall be at least 0.86 acres.
(d) The vegetation grown on the irrigation site shall be grass.
(e) Wastewater shall not be applied to field slopes greater than 10%.
(f) The wastewater irrigation system shall be capable of irrigating the annual design flow during an application period of less than 100 days or 800 hours per year.
(g) There shall be no public access to the land application site.

(2) General Operating Requirements.
(a) There shall be no irrigation during frozen, snow covered, or saturated soil conditions.
(b) There shall be no irrigation on days when more than 0.1 inch of precipitation is received or when there is a weather forecast for more than 40 percent chance of rainfall within the next 24-hours.
(c) The wastewater irrigation system shall be operated so as to provide uniform distribution of irrigated wastewater over the entire irrigation site.
(d) A complete ground cover of vegetation shall be maintained on the irrigation site.
(e) Wastewater shall be land applied only during daylight hours.
(f) The irrigation system and application site shall be visually inspected at least once per hour during wastewater irrigation.
(g) The irrigation system shall have automatic shut off device to shut down the system due to malfunction.

C. SPECIAL CONDITIONS (continued)

10. Special Conditions for Domestic Wastewater Irrigation (outfall #004 only)(continued)

A. Wastewater Irrigation System (continued)

(3) Buffer Zones. There shall be no irrigation within 300 feet of any downgradient pond, lake, sinkhole, or losing stream; 100 feet of gaining streams or tributaries including wet weather tributaries; 150 feet of dwelling; or 50 feet of the property line.

(4) Any discharge from the lagoon or irrigation system shall be reported to the department within 24 hours.

(5) The operator and supervisor shall receive at least 12 hours/year of training in wastewater irrigation.

(6) Storm water runoff locations from the irrigation sites must be marked in field and on a topographic map. The map shall be submitted to the department within 30 days after permit issuance.

(7) Permittee shall develop and maintain an Operation and Maintenance (O&M) plan approved by the Department.

11. Industrial Sludge Use or Disposal for Sludge Retained in Wastewater Treatment Lagoon

a. This permit does not authorize land application or disposal of industrial sludge.

b. Sludge Removal and Disposal Plan. At least 180 days prior to planned removal of sludge from the lagoon, the permittee shall submit a proposed sludge use or disposal plan for department review and approval. If the sludge will be land applied, a revised permit application must be submitted using permit application forms A, C, and R; (and D, where applicable). All land application sites must be public noticed and permitted prior to use.

c. Lagoon Closure Requirements. Prior to taking the lagoon out of service, a lagoon closure plan shall be submitted for department review and approval in accordance with 10 CSR 20-6.015(5). The lagoon must be closed within two years after ceasing to be used for wastewater treatment. All sludge shall be removed prior to closure.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless otherwise specified by MDNR, procedures should be consistent with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA/600/4-90/027.

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at p# 0.05)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at p# 0.05)
Test Acceptability criterion:	90% or greater survival in controls